MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEMS, MILL CREEK 3 GENERATORS
Mill Creek
Yucaipa vicinity
San Bernardino County
California

HAER No. CA-2272-P

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of Interior
1111 Jackson Street
Oakland, California 94607

HISTORIC AMERICAN ENGINEERING RECORD

MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEM,
MILL CREEK 3 GENERATORS

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Location: The Mill Creek 3 Generators (MC 3 Generators) are located within the Mill Creek 2 and 3 Powerhouse (MC 2 and 3 Powerhouse) at the northwest corner. The MC 2 and 3 Powerhouse is located just southeast of California State Route 38 (SR 38), immediately west and downhill from the associated penstocks. It is on USGS topographic map Yucaipa (Section 13; T.1S., R.1W.).

Significance: The MC 3 Generators serve Mill Creek 3 (MC 3) and consist of Unit #s 3, 4, and 5. Each unit includes: a water wheel or turbine, a governor to control the water wheel's loading, an electrical generator and an "exciter".[70] All three units are used to generate electricity from the MC 3 Penstock. MC 3 is one of the earliest examples of a high-head hydroelectric system within the United States and one of the first commercial three-phase alternating current stations in California. Three-phase alternating later became the industry standard.

Description: These generators were made by the General Electric Company and have 1,000 K.V.A., 750 volt and 770 amp, with patent dates ranging from 1888 to 1902. The water wheels are made by the Doble Steam Motors Corporation with 84-inch diameter wheels of 1,300 horsepower Lombard Governors. These wheels each carry 25 buckets. The generators are three-phase, 50 cycles, and are bolted into their cast iron bases.

History: In March 1903 MC 3 was complete and had begun operation. Following the completion of MC 3 four generators were installed in the MC 2 and 3 Powerhouse. These generators included: Unit #'s 2, 3, 4, and 5. Unit #2 had a Pelton water wheel and was located directly to the south of Units 3, 4, and 5. However, this unit was removed in 1932 and relocated to MC 1 and its generator stator was replaced. The stator is the large frame on the outside diameter of the generator, which has the copper coils that generate the power. The current MC 3 Generators Unit #'s 3, 4, and 5 were installed on the following dates: MC 3 Unit #3 – March 20, 1903; MC 3 Unit #4 – January 23, 1904; MC 3 Unit #5 – March 3, 1904. Please see the Historic Context section in the general Historic American Engineering Record for the Mill Creek 2 and 3 Hydroelectric Systems (HAER No. CA-2272) for additional information.

Sources:

Fowler, Frederick Hall. *Hydroelectric Power Systems of California and Their Extensions into Oregon and Nevada, Water-Supply Paper 493*. Washington, D.C.: Government Printing Office, 1923.

White, David R. M. "Cultural Resource Management Plan for the Southern California Edison Company Mill Creek Hydroelectric Project (FERC Project No. 1934) San Bernardino County, California," June 1993.

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[70] "Redlands Electric Light & Power Co., Edition Electric Co. of Los Angeles, Mill Creek Power houses," *National Register of Historic Places Inventory – Nomination Form*, April 30, 1985, item number 7, 9.

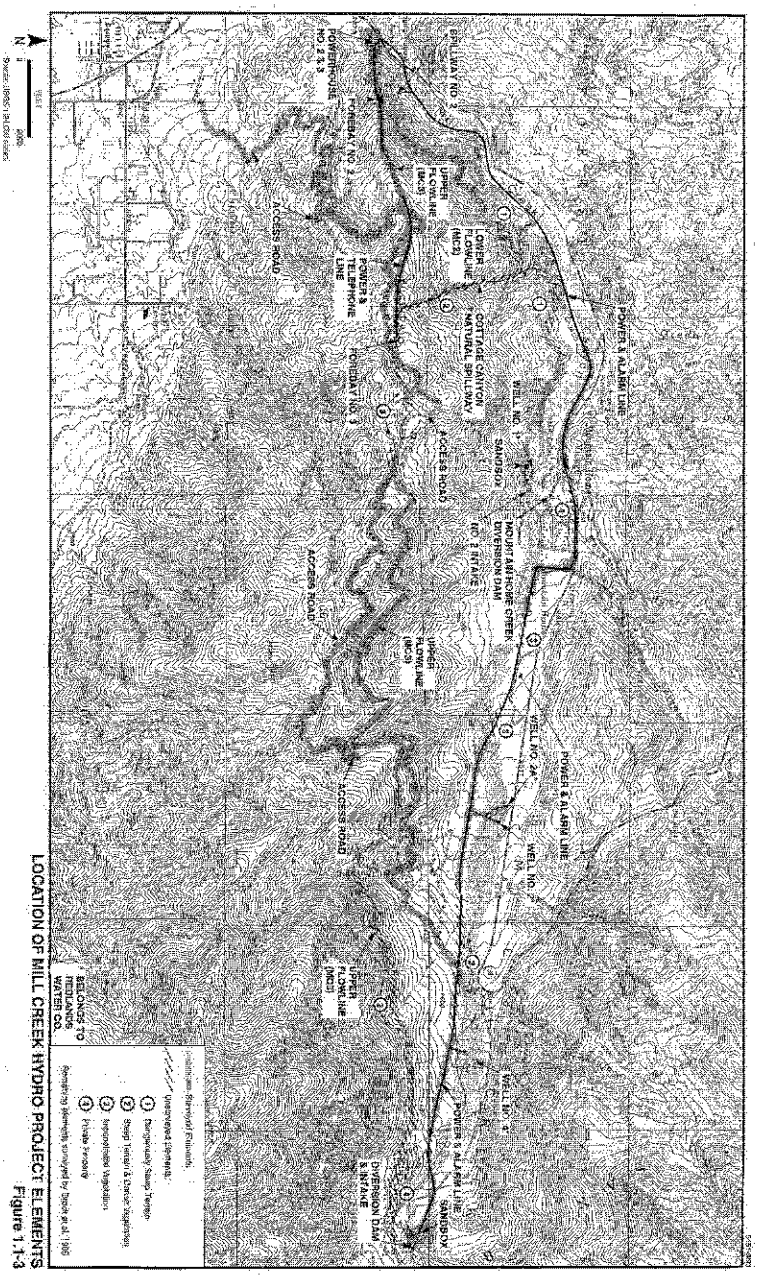
Low, George P. "The Generating, Transmission and Distribution Systems of The Edison Electric Company of Los Angeles, Cal.," *The Journal of Electricity, Power and Gas.* vol. XIII, no. 1. January, 1903.

"Means Much to Redlands: Big Light and Power Deal Closed," *Los Angeles Times.* May 25, 1901, 8.

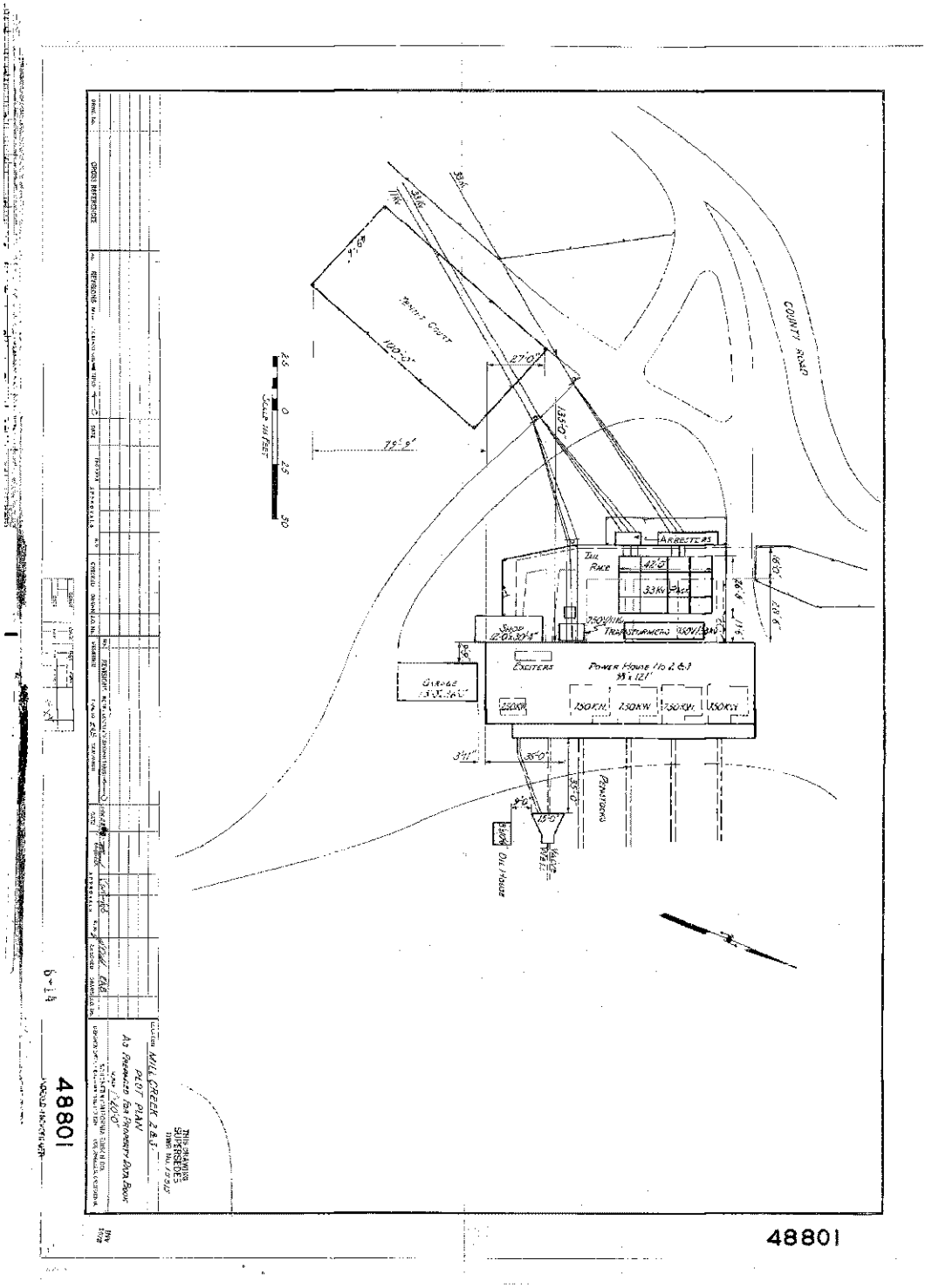
"Redlands Electric Light & Power Co., Edition Electric Co. of Los Angeles, Mill Creek Powerhouses," *National Register of Historic Places Inventory – Nomination Form*, April 30, 1985, item number 7, 10.

Historian: Christeen Taniguchi, Senior Architectural Historian, and Nicole Collum, Architectural Historian II, Galvin Preservation Associates, 1611 S. Pacific Coast Highway, #104, Redondo Beach, CA 90277, 2008-2009.

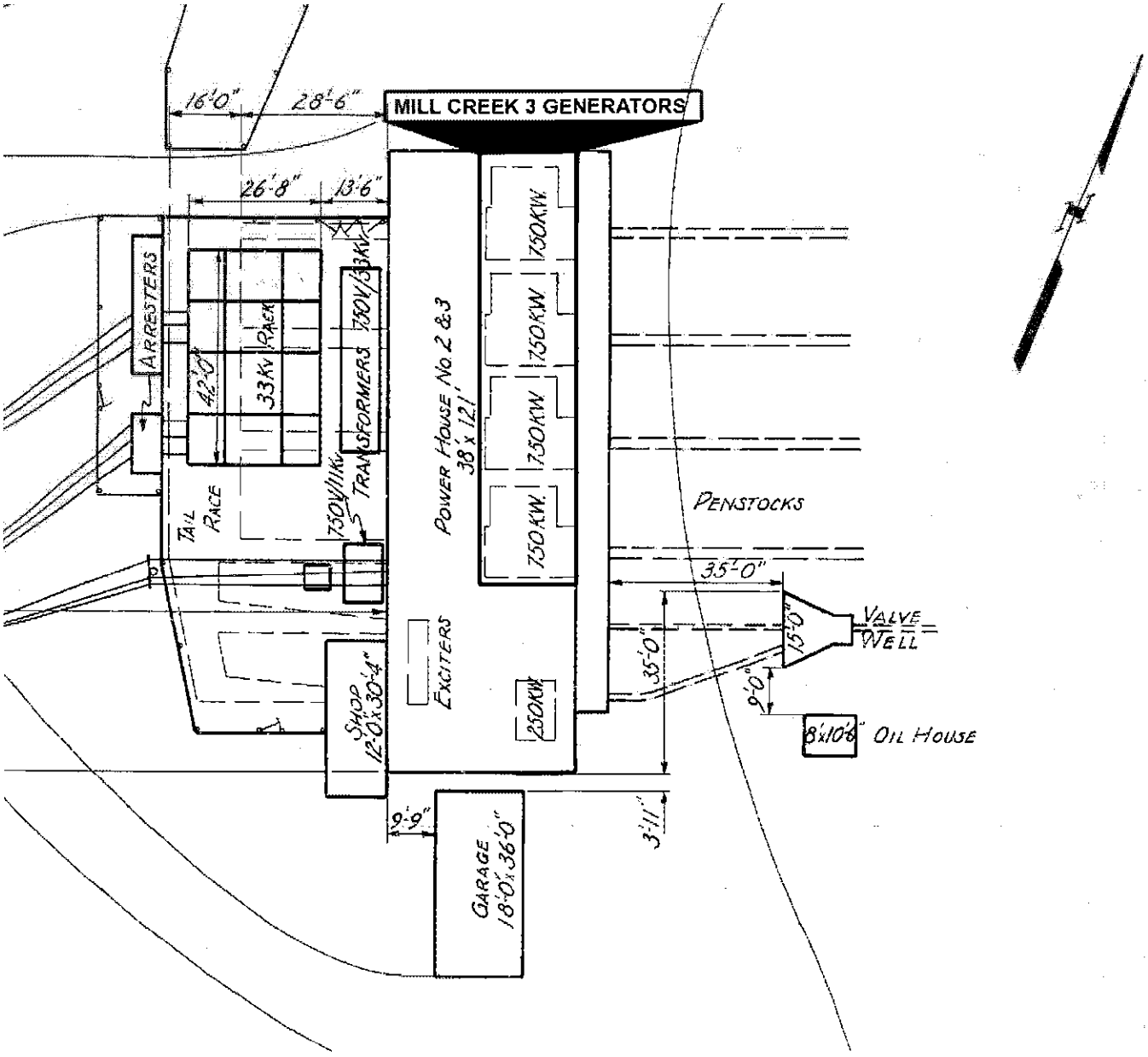
Project Information: MC 2 has not operated since 1992 when it was damaged during floods. It was not, however, decommissioned. The Southern California Edison Company, in conjunction with the San Bernardino National Forest, the agency that owns the property, proposes to formally decommission the facility. This process will include filling the sandbox and forebay with slurry, and removing the metal features. Although MC 3 is still in operation, it is also being recorded as part of this project because of the system's close association with MC 2.



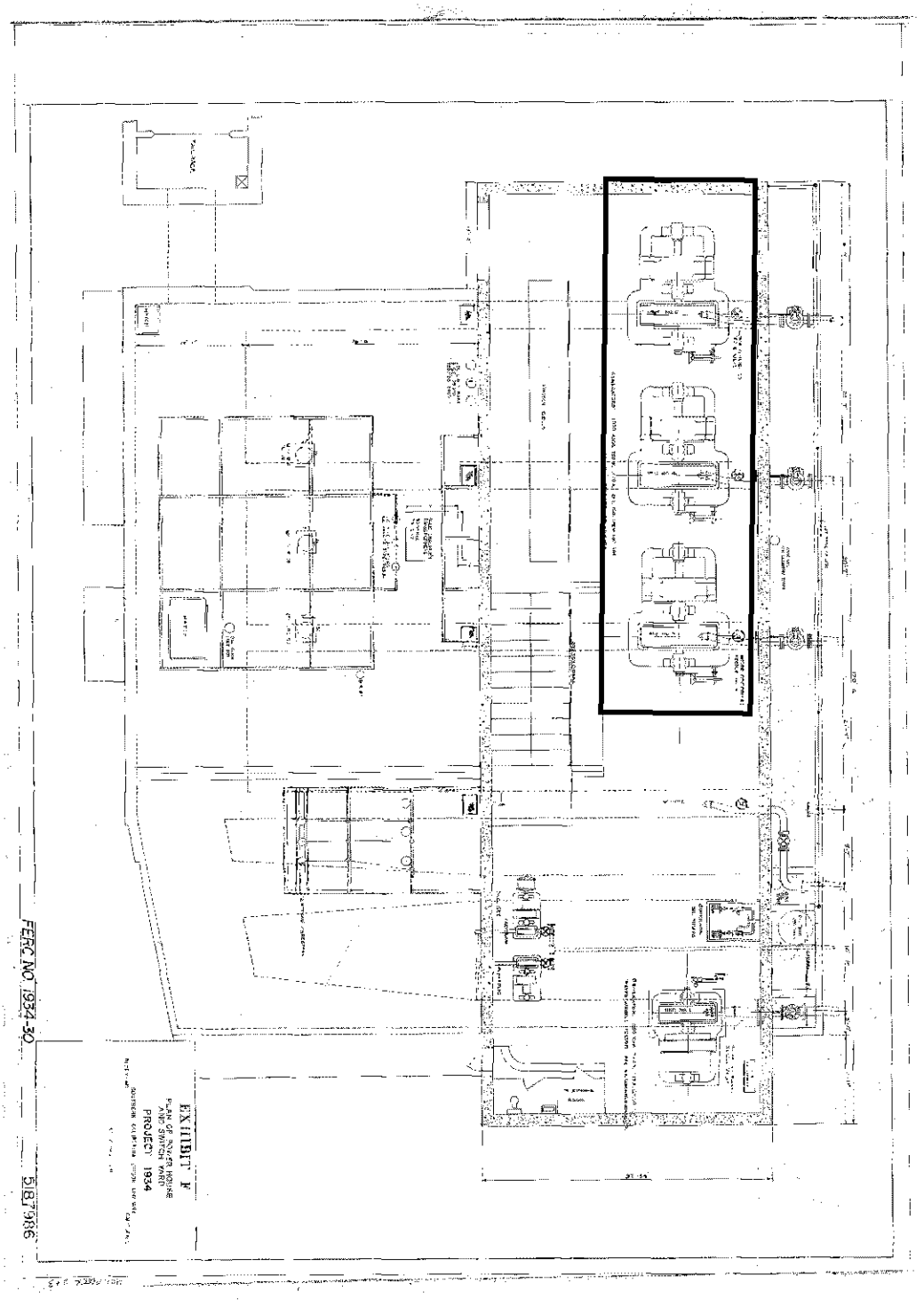
Location of Mill Creek Hydro Project Elements. (Map Courtesy of Southern California Edison)



Mill Creek 2 and 3 Powerhouse Plot Plan. (Map Courtesy of Southern California Edison).



Mill Creek 3 Generators Site Plan. (Plan Courtesy of Southern California Edison).



Interior Floor Plan of Mill Creek 2 and 3 Powerhouse, Mill Creek 3 Generators are located in the northwest corner. (Map Courtesy of Southern California Edison).